

**What is claimed is:**

1. A method for manufacturing semiconductor device,  
the method comprising the steps of:

5 sequentially forming a gate oxide film, a polysilicon  
film and a first nitride film on a semiconductor substrate;

etching the first nitride film, polysilicon film, gate  
oxide film and a predetermined depth of the semiconductor  
substrate to form a trench;

10 forming a device isolation film by filling up the  
trench to define an active region;

removing the first nitride film;

etching a predetermined thickness of the device  
isolation film to form a recess;

15 forming a second nitride film filling the recess;

forming a stacked structure of a barrier metal film, a  
metal layer and a third nitride film on the second nitride  
film and the polysilicon film;

20 etching the stacked structure and the second nitride  
film pattern via a photoetching process using a gate line  
mask to form a gate electrode comprising a stacked structure  
of second nitride film pattern, a barrier metal film pattern,  
a metal layer patter and a third nitride film pattern;

forming an insulating film spacer on a sidewall of the  
25 gate electrode;

etching the polysilicon film using the third nitride film pattern and the insulating film spacer as a mask to form a polysilicon film pattern; and

forming an oxide film on a sidewall of the polysilicon film pattern.

2. The method according to claim 1, wherein the step of forming a second nitride film comprises:

forming a nitride film having a predetermined thickness on the entire surface;

forming a sacrificial oxide film filling the recess on the entire surface;

planarizing the entire surface to expose the polysilicon film; and

removing the sacrificial oxide film to form the second nitride film filling the recess.

3. The method according to claim 1, wherein the first nitride film has a thickness ranging from 10 to 70nm.

4. The method according to claim 1, wherein the depth of the recess ranges from 20 to 200nm.

5. The method according to claim 1, wherein the second nitride film has a thickness ranging from 10 to 90nm.

6. The method according to claim 1, wherein the barrier metal film comprises a metal selected from the group consisting of WN, TiN and TiSiN, and the metal layer  
5 comprises a metal selected from the group consisting of tungsten, titanium silicide, tungsten silicide and cobalt silicide.

7. A semiconductor device including a device  
10 isolation film defining an active region, the device further comprising a gate electrode, wherein

a portion of the gate electrode on the active region comprises a stacked structure of nitride film-barrier metal film-metal layer-nitride film, and a portion of the gate  
15 electrode on the device isolation film comprises a stacked structure of polysilicon film-barrier metal film-metal layer-nitride film.

8. The method according to claim 7, wherein the  
20 barrier metal film comprises a metal selected from the group consisting of WN, TiN and TiSiN, and the metal layer comprises a metal selected from the group consisting of tungsten, titanium silicide, tungsten silicide and cobalt silicide.